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Tolerance in the United States: Does economic freedom transform racial, religious, political and sexual attitudes?

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ABSTRACT

Tolerance is a distinguishing feature of Western culture. Still, it varies between and within countries, as well as over time, and irrespective of whether one values it for its own sake or for its beneficial consequences, it becomes important to identify its determinants. In this study, we investigate whether the character of economic policy plays a role, by looking at the effect of changes in economic freedom (i.e., lower government expenditures, lower and more general taxes and more modest regulation) on tolerance in one of the most market-oriented countries, the United States. In comparing U.S. states, we find that an increase in the willingness to let atheists, homosexuals and communists speak, keep books in libraries and teach college students is, overall, positively related to preceding increases in economic freedom, more specifically in the form of more general taxes. We suggest, as one explanation, that a discriminatory tax system, which is susceptible to the influence of special interests and which treats people differently, gives rise to feelings of tension and conflict. In contrast, the positive association for tolerance towards racists only applies to speech and books, not to teaching, which may indicate that when it comes to educating the young, (in)tolerant attitudes towards racists are more fixed.

1. Introduction

Tolerance has increased over time in the United States (Twenge et al., 2015). The share of Americans who think that groups like homosexuals, atheists, racists and communists should have a right to have their say, even if one does not approve of their message, has gone up from about 50–60% to 60–80% over the past four decades – with the largest change for tolerance towards homosexuals and with the smallest change for tolerance towards racists.[1] What can explain such changes? This study aims at offering an explanation, with a particular and, in the American context, novel focus on the role of government vs. markets. The question we ask is whether a freer economy, i.e., an economy that has experienced a limitation of government expenditures, lower and more general taxation or more modest regulation, contributes to more or less tolerance.

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[1] Tolerance primarily emerged as a coherent idea in the Western world in the context of religious conflict in order to reduce conflict (Locke, 1689; Forst, 2012). It was also advocated by Mill (1859) to allow for individual experiments in living. Still, it has indeed been the case, also in the West, that intolerance towards various groups has been dominant at times. For example, Davis (2010) shows this to be the case in the American colonies.

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We investigate what the relationship looks like empirically in 41 U.S. states 1982–2008. We do so by relating medium-term changes in economic freedom to subsequent medium-term changes in tolerance. The variables we use are the index Economic Freedom of North America (EF) in Ashby et al. (2011), which measures the size of government, the tax burden and the degree of (labor-market) regulation in each state, and tolerance measures from the General Social Survey (2014) covering attitudes towards four minorities: racists, atheists, communists and homosexuals. There is an important conceptual difference between such attitudes (capturing tolerance/intolerance) and formal institutions (capturing non-discrimination/discrimination). While people may think that our four minorities *should* be legally constrained in what they do to spread their message, it is by no means certain that such constraints are in fact in place. We study what determines the attitudes, not what determines what the law stipulates (even though one can very well imagine a link between the two – e.g., if people in general are intolerant, this could make legislators more prone to introduce discriminatory rules).[2]

To get an idea of the distribution and change in tolerance (the average value of the four types of tolerance) in the U.S. states, see Fig. 1a for 1982 and Fig. 1b for 2008, where darker colors and higher numbers indicate more tolerance.

To give some examples from 2008, Arkansas and Louisiana appear to be the least tolerant states overall, while Minnesota and Arizona appear to be the most tolerant. Looking at the change in overall tolerance since 1982, Oregon and Kansas have seen the largest decreases, while Kentucky and Minnesota have gone in the opposite direction and seen increased tolerance to a greater extent than other states. Clearly, there are differences in tolerance across states and within states over time. For a more fine-grained illustration of the development of tolerance (of different kinds) in the states in our sample, see Fig. OA1 in the Online appendix.

The results from our empirical analysis indicate that more economic freedom relates positively to more tolerance towards three groups: atheists, communists and homosexuals (but not, to the same extent, to tolerance towards racists). The more market-oriented a state's economic policy becomes, *in terms of increasing the general character taxes through less progressivity*, the more willing people are to let these minorities into public discourse. We interpret this as an indication that changes in the character of the tax system can influence popular sentiments: By taxing some people's income at a higher rate than that of others, state governments introduce tension and conflict (Buchanan and Congleton, 1998), with negative results for tolerance towards minority groups. The other parts of economic freedom do not turn out to be robustly related to changes in tolerance, although there is some indication that the change in the level of taxes in a state may also matter. A number of sensitivity tests confirm the results and interpretation we offer.

Why take an interest in tolerance? One may value tolerance for its own sake, but it can also be linked to various outcomes that people in turn value. For example, modern research underscores the importance of tolerance for the subjective well-being of people (Inglehart et al., 2013). It may also be, as argued by Corneo and Jeanne (2009), that the chances for smaller groups that differ from the majority in a society to enjoy a substantial degree of legal protection increase with tolerance. Moreover, tolerance has been shown to entail economic consequences. Florida (2014, p. 200) argues that this generous attitude towards others creates a more dynamic economy:

> The more tolerant a place is, the more welcoming it is to all kinds of people, and the more likely it is to attract the kinds of people who are oriented towards self-expression and openness to experience – which psychological studies show are key characteristics of entrepreneurial behavior.

In a study of U.S. regions, Florida et al. (2008) find that tolerance, as measured by their Gay-Bohemian index (i.e., the concentration of homosexual households and people working in the arts, design and similar occupations) is positively related both to human capital and the share of people who belong to "the creative class", and also to both regional wages and income.[3] Cross-country analysis likewise suggests that tolerance is associated with economic growth: Berggren and Elinder (2012a,b) find that a higher share of people who do not mind having homosexual neighbors relates negatively to growth and that a higher share of people who do not mind having people of a different race as neighbors relates positively to growth in certain circumstances.

Turning to determinants of tolerance, the only existing study that we are aware of linking economic freedom to tolerance is a cross-country study, Berggren and Nilsson (2013). Their examination of the relationship indicates that it is positive, with tolerance being measured as attitudes to neighbors that are homosexual or of a different race and as a willingness to teach kids tolerance. The biggest effect is for tolerance towards homosexuals. The advantage with our study is that it is conducted with within-country data, which means that we automatically hold constant central institutions and cultural features that differ between countries and which can confound the findings. Interestingly, the two areas that were found to matter the most for tolerance across countries were a high-quality legal system and monetary stability – and by looking at the U.S. states, with a relatively unified legal system and a single monetary policy, we are better able to isolate the role free markets play for the prevalence of tolerant attitudes (over and above these national institutions and policies). As indicated above, we do find a positive effect of more general taxation, which suggests that even when legal quality and monetary stability are high, there is scope for policy measures to affect tolerance.

Other studies of "macro"-determinants of tolerance are few. They include Corneo and Jeanne (2009), who find that GDP per capita and becoming a new EU member affect tolerance towards homosexuals positively. Andersen and Fetner (2008) find a

[2] Gutmann and Voigt (2015) develop a new indicator of the rule of law and clarify, in so doing, how the rule of law implies generality and non-discrimination. However, it is not always the case, not even in democracy, that the rule of law in this sense is established, for political-economy reasons developed by Mukand and Rodrik (2015).

[3] For examples of related studies that reach similar conclusions, see, e.g., McGranahan and Wojan (2007); Boschma and Fritsch (2009) and Florida and Mellander (2010).

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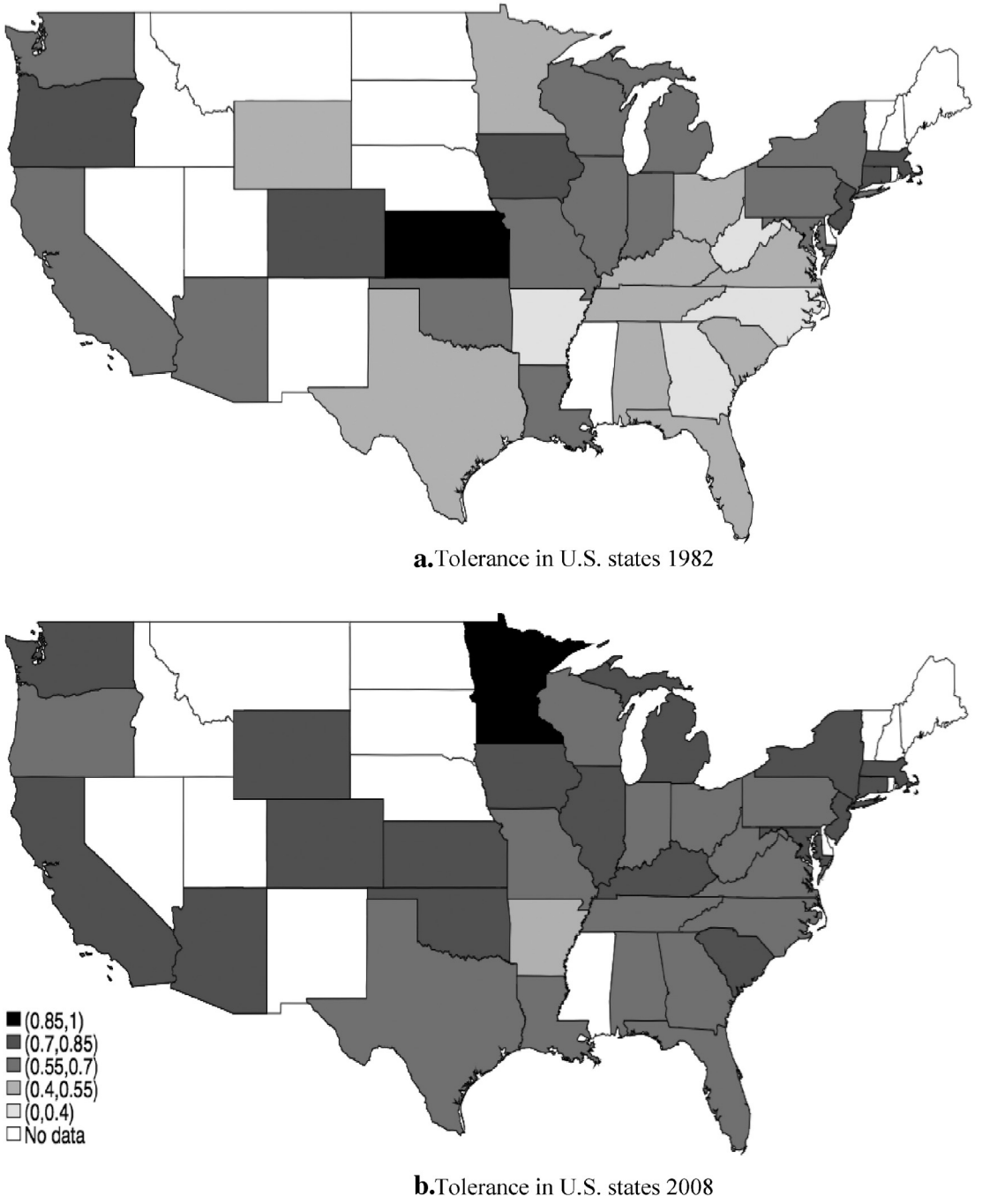

Fig. 1. a Tolerance in U.S. states 1982. b. Tolerance in U.S. states 2008. Note: The maps illustrate tolerance in the 35 U.S. states for which data are available for both 1982 and 2008 in the General Social Survey (2014), with darker colors and higher numbers indicating more tolerance.

negative effect of income inequality but a positive impact from income on the same type of attitude. Spitz (2004), lastly, posits a connection between the free-trade agreement NAFTA and greater acceptance for same-sex marriage in the United States, as a consequence of greater interaction and integration with more tolerant Canadians. Note that all these studies look at popular attitudes to minorities, not at discrimination in formal institutions, which is a separate matter.

There are other less close, but still related, studies. The Economic Freedom of the World index, or some of its areas, have been found to be related to "social" or cultural variables other than tolerance in cross-country studies: Berggren and Jordahl (2006) find that economic freedom increases social trust, and Rode (2013) documents a positive effect on subjective well-being.[4] The

[4] For a comprehensive summary of studies using this index, see Hall and Lawson (2014).

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Economic Freedom of North America index has been used to study the relationship between free markets and variables such as corruption and income inequality in the context of U.S. states. Apergis et al. (2012) conclude that economic freedom decreases corruption in the long run, but also note that the relationship seems to be bidirectional. Ashby and Sobel (2008) identify a negative effect of economic freedom on income inequality, which Apergis et al. (2014) also do for the long-term equilibrium case (while also finding signs of a bicausal relationship). Bennett and Vedder (2013) rather find an inverted u-shape between the two variables, with a negative relationship only above a certain level of economic freedom. Hoover et al. (2015) apply a novel perspective and focus on racial income differences. The results suggest that economic freedom increases the income ratio between ethnic groups.

We now turn to theoretical considerations (Section 2), before continuing with a presentation of our empirical strategy and data (Section 3) and the empirical results (Section 4), finally offering some concluding remarks (Section 5).

2. Theoretical considerations

Tolerance is a social attitude of openness, even to opinions, characteristics and behavior that one dislikes. Theoretically, we see two main links connecting economic freedom and tolerance: one relating to government activities and one relating to market activities.

2.1. Government activities

Governments decide on central issues of concern for how people behave and think through taxation, expenditures and regulation.

Regarding *taxation*, we suggest that both its character and level can play a role. The character of taxation can have a direct effect on tolerance. As outlined by Buchanan and Congleton (1998), much policymaking, not least taxation, is characterized by non-generality, by people being treated differently. For example, some pay a higher tax-rate on their incomes than others; income and capital owners are taxed differently; and certain sectors face lower sales-tax or VAT rates than others, etc. There might, of course, be good efficiency or equity arguments for such unequal treatment, but they can nevertheless be perceived as favoring some at the expense of others, especially if they stem from special-interest capture, and this can create tension among people and a reduced willingness to tolerate views one dislikes. The level of taxation can be expected to affect tolerance by deciding how available resources are divided between the private and public sectors – and if government activities tend to decrease tolerance and private activities to increase it, this implies that less taxation brings about more tolerance (or vice versa).

Regarding *expenditures*, they could also affect tolerance through their character and level. As for their character, some types of expenditures can be expected to increase tolerance, maybe especially education, which can foster an open attitude towards others through teaching and social interaction, and certain social expenditures that reduce inequality. In some cases, the government also uses its resources for propaganda in the direction of tolerance, which might pay off. However, if expenditures are perceived to be distributed in a way that benefits some at the expense of others, this can cause feelings of conflict to arise. Again, if special interests manage to secure benefits to which they are not thought to be entitled, this can lead to a dislike of minority groups in society and reduce the willingness to understand others. As for the level, we have a scaling effect here as well: If more of the budget is allocated to measures that increase tolerance, tolerance increases even more, and vice versa.

Regarding *regulation*, it can matter in two ways as well: through its character and through its level. If the character of regulation is such as to remove barriers to entry and to increase competition, or if it is perceived as "taming" market forces that could otherwise be exploitative or opportunistic, it can contribute to markets working in a way that benefit people in general – which, for reasons mentioned below, can be expected to increase tolerance. However, if regulation is based, not on common-interest considerations but on special-interest concerns, it can favor certain companies at the expense of others and be thought to introduce unfair rules of the game, with discontent and tension as a result from those who were not favored.

Lastly, can these effects be related to the particular groups under study, i.e., racists, homosexuals, atheists and communists? It is straightforward to see a direct link if such a group is favored exclusively at the expense of others – say, if atheists get a favorable tax treatment or subsidies. But since taxation, expenditures and regulation are not typically differentiated along such precise group lines, we argue that non-general policy in these areas need not be directed towards these particular groups in order for it to affect tolerance towards them.

First, a perception of more unfairness in government policy can create a *general* sensation of suspicion and distrust between people and groups, and vice versa, if the perceived unfairness is reduced – especially if the government is seen as acting to satisfy explicit demands for more favors by special interests. In that sense, government policy in one area functions as a *symbol* and a *signal* of the government's willingness to treat people differently overall. It can also plausibly be argued that non-generality in one area is related to non-generality in other areas in actual policy: Either the government operates under a "rule of law" conception of politics (as advocated by Buchanan and Congleton, 1998; cf. Gutmann and Voigt, 2015), or it does not consider itself bound by such a conception. Alas, we do not have data on the generality of different kinds of policy, but in principle this could be investigated empirically.[5] Kumlin and Rothstein (2005) formulate a similar idea in the context of welfare policy and social trust: How government officials (are perceived to) treat people generalizes into social attitudes. If the policy and its implementation are universal, it leads to more trust between people; if it is non-general and means-tested, it tends to work in the other direction.

[5] One can point, for some support, at research showing that prejudicial attitudes often seem related, such that if they are influenced to change in relation to one group, they tend to be change in relation to other groups as well (Bierly, 1985; Pettigrew, 1997; Aosved et al., 2009).

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Second, in the context of tax policy in particular, a more neutral structure of tax rates entails simplification, which is related to less evasion (Richardson, 2006), since the system is easier to understand, easier to control and possibly perceived as more legitimate. When fewer people cheat, this can generate less adverse feelings towards others, and more tolerance among people. Third, more progressive rates imply that work becomes less profitable at the margin for certain income groups, which implies that a larger fraction stays at home more. Both because of less net income and more time at home, this arguably entails a reduced demand for home services, with a concomitant reduced opportunity for people of different socioeconomic (and plausibly also racial and political) characteristics to meet and influence each other's attitudes. In all, we believe there are good theoretical reasons to expect tolerance towards various minority groups to increase if economic policy, not least tax policy, becomes less discriminatory.

2.2. Market activities

Our empirical analysis uses a measure that characterizes economic policy in terms of how market-oriented it is. As outlined in the preceding section, government policy as such could influence tolerance; but it also determines what share of the economy that is left for the private sphere through the levels of taxation and expenditure. And if market activities are related to tolerance, the degree to which economic policy leaves room for the market to function could then also affect tolerance.

There is a long, not least Marxist tradition of telling a pessimistic story about markets. Some elements of this story, such as markets giving rise to exploitation, economic inequality and selfishness (Hirschman, 1982; Casebeer, 2008) can be related to social attitudes like tolerance. If workers experience *maltreatment* and unfavorable conditions (maybe even unemployment), this can create hostility towards "capitalists" and possibly towards society at large. *Inequality* has been linked to low social trust (Jordahl, 2009) – economic differences tend to create a feeling of distance and, sometimes, unfairness – and since it seems as if markets' ability to generate tolerance is increasing in social trust (Berggren and Nilsson, 2014), this might have a dampening effect on the presence of tolerance. *Selfishness* implies, by definition, that one cares for oneself and not for others, which might entail not caring for the right of others to say what they want. At the very least, this could mean weaker support for tolerance. Experimental evidence suggests that monetary incentives (typical of markets) at times crowd out altruistic sentiments and that the "minimalist" character of markets shapes norms and behavior: One can (learn to) interact with others in a shallow manner without deeper bonds, and mechanisms to ensure "nice" behavior, such as retaliation and reputation, may not work well (Bowles, 1998). A less altruistic orientation could mean a lesser concern for the rights of others to have their say in society; and experience of "not-so-nice" behavior can induce people to generalize that others different from oneself, and about whom one knows little, are prone to try to hurt one, which can also reduce tolerance for differences.

However, there are other theories of a more optimistic kind that stress the ability of markets to bring about virtuous behavior and, not least, social attitudes like tolerance. Paine (1792/1951, p. 215) was an early proponent of such a view:

> (Commerce) is a pacific system, operating to cordialise mankind, by rendering Nations, as well as individuals, useful to each other. … The invention of commerce … is the greatest approach towards universal civilization that has yet been made by any means not immediately flowing from moral principles.

That is, people enter into voluntary and peaceful arrangements with others in order to exchange resources, as they realize that this is mutually beneficial, and this not only reflects but also sustains a culture of cooperation. As Casebeer (2008) notes, such environments afford opportunities for virtues to develop through practice in the form of repeated interactions with others. And positive experiences of dealing with others could increase tolerance: Those who are different are not seen as threatening but able to co-exist with and also contribute to higher well-being for you. This idea reflects the so-called contact hypothesis (Allport, 1954), which states that intergroup prejudice is reduced when members of different groups interact with each other under certain conditions (equal status, common goals, intergroup cooperation, support of authorities, law or customs, and personal interaction). The hypothesis is found to hold in many empirical studies, even when these conditions do not hold (but more so if they do) – see, e.g., Pettigrew et al. (2011) for a review and Carrell et al. (2015).

Relating this more directly to markets, there is, indeed, empirical support for market integration being able to shape social attitudes in a pro-social way. Henrich et al. (2001) find that the higher the degree of market integration, the greater the likelihood of cooperation and making fair offers to strangers. Henrich et al. (2010) similarly show experimentally how engagement in markets sustains fairness in exchange. Huck et al. (2012) report experimental results that an ability to build a reputation, coupled with competitiveness (the ability to choose with whom to interact), is conducive to trust (which in turn, as noted, is conducive to tolerance). Hoffman and Morgan (2015) find that workers in industries with "cutthroat" competition in fact are more pro-social – in the sense of exhibiting more altruism, trust, trustworthiness and honesty – than student subjects. They theorize that in industries with anonymity, high stakes and competitiveness, it is difficult to solve the trust problem with formal mechanisms, so individuals must rely on a variety of informal mechanisms. Pro-social individuals can more easily sustain trust, and hence prosper, in these situations. Bartling et al. (2015) find evidence from Switzerland that many consumers and firms wish to avoid a negative social impact in the market. This behavior is generally robust to varying market characteristics, such as increased seller competition and limited consumer information.

It bears noting that what is meant by "market activities" varies quite a bit. On the one hand, one may have in mind the stylized idea of markets from microeconomic textbooks with perfect competition, where transactions are of a fast, one-shot nature, where anonymity reigns between economic actors and where entry and exit is costless. On the other hand, one may think of thick, deep personalized settings, characterized by repeated dealings with different kinds of people, some of whom one knows well, some of

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whom one may know a little about and some of whom are new acquaintances, and where people, due to transaction costs, tend to develop and deepen relations with others.[6] Given the opposing predictions discussed above, it is important to clarify that the effects of markets on tolerance need not be the same for both of these cases. Bowles (1998) argues that the former type of setting can give rise to and sustain behavior that is not socially pleasing. We grant that this is a possibility, but on the one hand, the risk for this should be smaller in the second type of setting, and on the other hand, even in an idealized competitive economy of anonymous, ephemeral and costless transactions, two aspects of market interaction may nevertheless stimulate tolerance (broadly in line with the experimental results reported above).

First, selfishness was identified above as a possible consequence of market interaction, the idea being that ephemeral interaction based on shallow relations and a concern for bettering one's own condition, first and foremost, reinforces a tendency to not care about others. However, it is not clear that this reduces tolerance. Tolerance need not be based on a genuine concern for others: in fact, the classical meaning of the term indicates that it is not. It is an attitude of non-interference, which may lie very close to simply not caring for others (one way or the other). If I do not care, I do not want to stop others from having their say. Hence, if markets give rise to selfishness (which in itself is not clear), this can arguably go hand in hand with tolerance. Second, markets of the perfect-competition etc. kind are characterized by freedom and strict individualism or atomism. The agent sees that such an abstract, free system works in an ordered manner (given the rule of law) and that it brings benefits to those who operate in it. Through generalization, agents may very well think that "the market of ideas" can work in a similar way and give rise to positive consequences: People of different persuasions and kinds come together and have their say, and this could give rise to more correct knowledge and better understanding of why we think what we think (cf. Mill, 1859). If freedom works in one situation, it may very well be taken to hold in another.[7] And if economic agents, perhaps when they were in business school, read Coase, 1974, such a perceived link between markets for goods and services, on the one hand, and markets for ideas, on the other, is even more probable.

Two further reasons for a positive link between the degree to which an economy is market-oriented and tolerance can be proffered. First, the profit motive can induce people in competitive sectors to tolerate those who are different. Even though "deep", personal tolerance may be lacking, a manager or company owner realizes that if he rejects people on the basis of characteristics or views that are not related to productivity, competing firms gain a competitive advantage, which may in the end lead to the demise of the company. This relates to the theory of discrimination introduced by Becker (1971), who points at a mechanism in markets for reducing the exclusion from the economy of people on other bases than low productivity, which will tend to discourage discrimination. In a free market economy, with competing, profit-seeking firms and people set on maximizing their well-being, economic actors will therefore tend to have an incentive to be tolerant. Likewise, consumers would suffer utility losses if they were to reject better offers of goods and services solely because the companies making the offers were represented by people of a certain race, creed, sexual orientation or the like. Second, if people are less dependent on government, they will feel it particularly important to equip their children for life in a market economy, which builds on meeting approval from others. For reasons outlined by, e.g., Corneo and Jeanne (2009) and as indicated by empirical analyses in Berggren and Nilsson (2013, 2015), instilling tolerance may be seen as an insurance mechanism when it is uncertain who turns out to belong to what minority. A tolerant culture entails openness to those who grow up, even if they deviate from the mainstream.

2.3. Summary

To summarize, on theoretical grounds it is clear that one can expect economic freedom to affect tolerance: What government does and how it does it, as well as the scope for voluntary, commercial exchange through which people meet and form attitudes towards others who are different, should contribute to forming attitudes towards others. But the ways in which economic freedom works in this area are potentially manifold and go in different directions, which justifies an empirical analysis to shed light on what the net effect is.

3. Empirical strategy and data

3.1. Empirical strategy

In order to test whether and in what way economic freedom relates to tolerance, we specify an empirical model of the following kind:

$$\Delta Tolerance_{ij} = \alpha + \beta_1\left(\Delta EF_{kj}\right) + \beta_2\left(\boldsymbol{X_j}\right) + \varepsilon_j \quad (1)$$

where $\Delta Tolerance_{ij}$ denotes the change in tolerance i (where i = racists, atheists, homosexuals, average) in state j between period t and t + 6, ΔEF_{kj}denotes the change in economic freedom k (where k = size of government, takings and discriminatory taxation,

[6] As argued by Klein (1997, 2000), in this type of setting reputation and assurance mechanisms are both demanded and supplied in order to ensure "nice" behavior.

[7] Bowles (1998, p. 80): "However acquired, preferences are internalized: there is considerable evidence that preferences learned under one set of circumstances become generalized reasons for behavior. Thus economic institutions may induce specific behaviors – self-regarding, opportunistic, or cooperative, say – which then become part of the behavioral repertoire of the individual."

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regulation, average) in state j during a preceding period, between t and $t-6$, and where $\boldsymbol{X}_j$ denotes the levels of the control variables at t in state j.

The analysis is carried out on the state level in the United States for 41 states using data over the period 1982–2008, where $t = 1988, 1994, 2002$.[8] Fig. 2 illustrates the timing of the variables. To exemplify, let $t = 2002$. The change in tolerance is calculated using General Social Survey data in 2002 and in 2008, while the change in economic freedom is calculated using information in 1996 and in 2002. All additional control variables have values from 2002.

The use of changes rather than levels is an attempt to handle unobserved heterogeneity. If using levels, a convincing analysis of the relation between economic freedom and tolerance requires a large number of control variables to account for state heterogeneity. The number of such variables available is, however, limited, and a large set of controls is also problematic to incorporate when having a small sample of observations, as in our case. We therefore opt for a first-difference analysis and look at the relationship between changes in economic freedom and changes in tolerance. This enables us to estimate the relationship in a manner that is robust to latent heterogeneity due to time-invariant effects. Using changes, over fairly long time periods, also reflects our view that an influence of economic freedom on cultural variables, such as tolerance, is the result of medium-term processes. For policy changes to have an effect, they need to be in place over some period of time such that people adapt their thinking and behavior and have time to be affected by new experiences. Lastly, it bears noting that by having the change in economic freedom predate the change in tolerance, we also reduce the risk that our results capture an influence from tolerance on economic freedom.

3.2. Data

Our outcome variables measure changes in tolerance. There are five of them altogether, based on nine survey questions in the General Social Survey:

- *Tolerance racists*: The average of the change (in percentage points) in these three shares in each included U.S. state:
  - The share that replies "Allowed" to the question "Consider a person who believes that Blacks are genetically inferior. If such a person wanted to make a speech in your community claiming that Blacks are inferior, should he be allowed to speak, or not?".
  - The share that replies "Not remove" to the question "If some people in your community suggested a book he wrote which said that Blacks are inferior should be taken out of your public library, would you favor removing this book, or not?".
  - The share that replies "Allowed" to the question "Should a racist be allowed to" and "Should a racist be allowed to teach in a college or university, or not?".
- *Tolerance homosexuals*: The average of the change (in percentage points) in these three shares in each included U.S. state:
  - The share that replies "Allowed" to the question "What about a man who admits that he is a homosexual. Suppose this admitted homosexual wanted to make a speech in your community. Should he be allowed to speak, or not?".
  - The share that replies "Not remove" to the question "If some people in your community suggested that a book he wrote in favor of homosexuality should be taken out of your public library, would you favor removing this book, or not?".
  - The share that replies "Allowed" to the question "Should a homosexual be allowed to teach in a college or university, or not?".
- *Tolerance atheists*: The average of the change (in percentage points) in these three shares in each included U.S. state:
  - The share that replies "Allowed" to the question "There are always some people whose ideas are considered bad or dangerous by other people. For instance, somebody who is against all churches and religion. If such a person wanted to make a speech in your (city/town/community) against churches and religion, should he be allowed to speak, or not?".
  - The share that replies "Not remove" to the question "If some people in your community suggested that a book he wrote against churches and religion should be taken out of your public library, would you favor removing this book, or not?".
  - The share that replies "Allowed" to the question "There are always some people whose ideas are considered bad or dangerous by other people. For instance, somebody who is against all churches and religion. Should such a person be allowed to teach in a college or university, or not?".
- *Tolerance communists*: The average of the change (in percentage points) in these three shares in each included U.S. state:
  - The share that replies "Allowed" to the question "Now, I should like to ask you some questions about a man who admits he is a Communist. Suppose this admitted Communist wanted to make a speech in your community. Should he be allowed to speak, or not?".
  - The share that replies "Not remove" to the question "Suppose he [a communist] wrote a book which is in your public library. Somebody in your community suggests that the book should be removed from the library. Would you favor removing it, or not?".
  - The share that replies "Not fired" to the question "Suppose a communist is teaching in a college. Should he be fired, or not?".
- *Tolerance*: The average of *Tolerance racists*, *Tolerance homosexuals*, *Tolerance atheists* and *Tolerance communists.*

[8] Our empirical strategy to examine medium-term changes in tolerance is more data-demanding than a traditional cross-sectional analysis. In the General Social Survey, there is information containing at least two data points that are six years apart for 41 states (listed in Table A1 in the Appendix). Due to data availability we use $t = 1994$ rather than $t = 1995$. The change in economic freedom is still predating the change in tolerance in the same manner as described above. An alternative for the last time period would be to stop at the year 2000, to get even time periods, but we then lose a number of observations, and we therefore prefer to end the last period in 2002.

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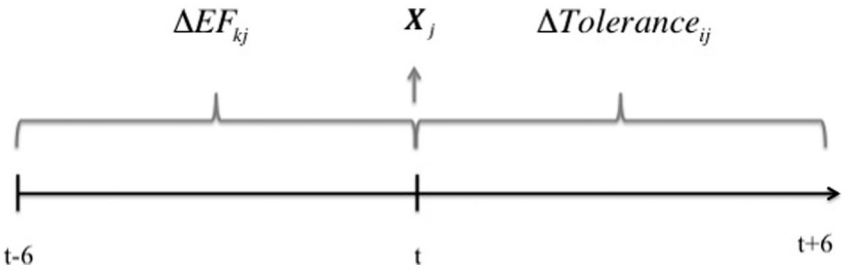

Fig. 2. The timing of the variables.

These tolerance measures are chosen since they are clean, in the sense that the answers reveal a person's attitude towards the minority in question without introducing other considerations; since they conform to classical situations of tolerance, where the right of minorities to express their views is concerned; since there is reasonable variation in the data.[9,10] To comment briefly on each measure, tolerance towards homosexuals is interesting in itself, given the persecuted history of this minority, but Inglehart and Abramson (1999) furthermore regard it as a general indicator of tolerance in a society; cf. Florida (2014, p. 198). As for atheists, they have become more vocal in recent years and have challenged widely held religious beliefs in the United States. How they are perceived by most people seems important as such in this cultural development dynamic; but Wiseman and Young (2014) also find a link, across U.S. states, between the share of non-believers and productive entrepreneurship, suggesting a potential link between tolerance towards atheists and economic growth. Tolerance towards communists is the only political variable we can include, and as such we consider it interesting to see if it is affected by political decisions in the economic area – especially if market-oriented policies are related to an ideology that regards markets as suspect. Lastly, it might be thought that tolerance towards racists is different in character from tolerance towards the other groups: in the former case, those tolerated are characterized by intolerance. While there is something to this, we would not like to overstate this aspect of racism in relation to the other three phenomena under study – e.g., one might consider communists intolerant towards the capitalists and (at least some) atheists intolerant towards the religious. What it boils down to, as we see it, is that tolerance entails an attitude of allowing those thought to hold unpleasant – including intolerant – views to have their say, so we think it apt to study this variable as well.[11]

Our main explanatory variables are the changes in four measures of economic freedom, measured for each of the included U.S. states by Ashby et al. (2011): *Size of government* (EF1), *Takings and discriminatory taxation* (EF2), *Regulation* (EF3) and *Economic Freedom* (EF), the last measure being the average of EF1, EF2 and EF3. Each of the three areas of EF in turn consists of several variables, which we also relate to tolerance, in order to get a more detailed understanding of what drives the EF–tolerance relationship. The precise construction of these measures is described in Table A2 in the Appendix. They capture different aspects of the degree to which government and market activities respectively characterize an economy. The less the government intervenes in the economy, and the more it does so in a non-discriminatory fashion, the more economic freedom.[12]

A first-difference analysis bundles time-invariant state characteristics into an error component and estimates the relationship between changes in economic freedom and changes in tolerance in a way that is robust to unobserved heterogeneity with respect to factors that are constant over time at the state level. However, since some matters vary over time, we make use of a set of control variables, chosen both because they have been shown to matter in previous studies on the determinants of tolerance and because we consider them potentially important on theoretical grounds. In our main specifications, we include the values at time t of: tolerance (we include this initial value to capture convergence effects), real GDP per capita, education levels (more specifically, the share with less than high school education as the reference group, the share of high school graduates, the share of those with some college and the share of those with a college degree), the age structure (more specifically, the share of the population younger than 25 as the reference group, the share aged 25–44, the share aged 45–64 and the share older than 64), the shares of blacks and Hispanics and the Gini coefficient (to measure income inequality). We use initial levels

[9] These measures do not necessarily only capture tolerant attitudes in the classical sense, where someone is willing to let something he or she *dislikes* be allowed, but also truly supportive attitudes. We consider this broader, "neoclassical" definition of tolerance (Von Bergen and Bandow, 2009) apt for our purposes. The most important thing for the minorities in question is arguably whether or not they are let into society, not why they are. And so these measures express the degree to which people in each state are willing to let these three minorities have an equal say, for whatever reason.

[10] In a similar way the General Social Survey includes information on attitudes towards socialists, revolutionaries and militarists, but data for these measures are not available for the years used in our study, and we therefore leave them out of our analysis.

[11] Admittedly, as argued by Popper (1945), there is a line at which the tolerant, from the point of view of their values, should cease to be tolerant towards intolerance – when the latter threatens key values of the overall tolerant society. Whether tolerance towards racists is such an unacceptable type of tolerance is not for us as social scientists to say. Our focus is on whether this type of tolerance is related to economic freedom – and it actually turns out to be different from the other measures in this regard, as reported in the next section.

[12] We use the "all-government" version of the index, which captures the impact of policy on economic freedom by all three levels of government (federal, state and municipal) in each state. We consider this adequate since we are interested in the effects of (changes in) economic freedom irrespective of the level at which the policies were decided. However, note that certain areas of policy that are typically decided upon at the federal level and which arguably apply equally to all states, such as the rule of law, monetary policy and trade policy, are not part of the index (as constructed in 2011 and backwards). See Karagegovic et al. (2003) for an earlier version of the index.

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for these controls, since they may very well be mechanisms through which changes in economic freedom affects changes in tolerance, and by including them, time-wise, in between changes in the main explanatory variable of interest and changes in tolerance, we think we better capture the "real" effect of the former. We also include dummy variables for geographical regions within the United States (Alaska as the reference group, the Midwest, the North, the South and the West). Table A3 in the Appendix presents all variables, their sources and descriptive statistics.[13]

4. Results

4.1. Main results

We first present the results of our main specification in Table 1. We begin with a parsimonious baseline specification and gradually increase the number of controls to identify the effects of changes in the model. Table 1 presents the baseline results focusing on changes in average economic freedom, with changes in average tolerance as the dependent variable.

The results indicate that more economic freedom in a preceding period correlates positively with increases in overall tolerance. Statistical significance obtains when the number of control variables is increased. The results (from column 6) indicate that a one-unit change in economic freedom on average corresponds to a six-percentage point change in tolerance. To get a feeling for these magnitudes we can give an illustrative example focusing on Tennessee and Texas. These two states had the very same level of tolerance (0.51) in 1982, but took somewhat different paths regarding economic freedom in the following decades. If Texas had increased its overall EF score to the same extent as Tennessee over the time period (1.1 for Tennessee compared to 0.4 for Texas), this would have resulted in a further eight-percent increase of tolerance.[14]

Looking at the control variables, a higher level of tolerance in a state comes with a smaller change in tolerance over each six-year period. Education is an important predictor of the development of tolerance, but there is a weak link between demographic structure and changes in tolerance. In some specifications the oldest age group is associated with a greater increase in tolerance than the youngest. This is in line with indications in other studies that find that older people in the United States have been affected more strongly in a tolerant direction than others, even though as a rule the young are still more tolerant (Andersen and Fetner, 2008; Twenge et al., 2015). Notably, neither ethnicity, GDP per capita (except in the first column) nor income inequality seems to matter in a statistically significant way; the same goes for the regions.

Table 2 presents the baseline results when examining each tolerance measure separately (without results for the control variables; they are, however, reported in Table OA1 in the Online appendix). Interestingly, the findings suggest varying effects from changes in government involvement in economic life on changes in tolerance. While increases in tolerance towards homosexuals, communists and atheists are positively related to preceding increases in economic freedom, there is no such statistically significant relationship for tolerance towards racists. The latter type of tolerance thus seems unaffected by the size and character of government activities and by the scope of market activities.

What could explain this? When we decompose tolerance towards racists, we find that increases in two of the three types of tolerance – relating to giving a speech and keeping a book in the library – *are* positively related to previous increases in economic freedom. It is the absence of an increase in tolerance towards racists teaching college students, as a result of more economic freedom, that drives the "zero" estimate in Table 2. We speculate that racism is considered an especially intolerable phenomenon in the context of education and that most people's positions are therefore not affected by either changes in economic freedom or the related changes in the scope of market activities.[15] Still, the overall results suggest a great potential for more economic freedom to increase tolerance towards certain minorities.

In order to make more precise what elements of economic freedom that contribute to increased tolerance in U.S. states and get a deeper understanding of baseline findings, we also estimate the same model as before, except we replace the average measure of change in economic freedom with the change in the three areas EF1, EF2 and EF3. Table 3 presents the estimated coefficients, without reporting, for reasons of space, the findings for the control variables. The results suggest that the area of importance concerns taxation (change in EF2), which positively and significantly relates to increased tolerance towards homosexuals, atheists and communists (and in one specification also racists) in the subsequent time period. The other two areas of economic freedom do not seem to matter for tolerance.

When replacing the change in EF2 with the changes in its four constituent variables (see Table A2), the change in the tax share of GDP (EF2a) and the change in the top marginal tax rate and the income threshold at which it applies (EF2b) are related to increased tolerance. The latter dimension of taxation is clearly more robust – it is the only one that matters when including all the changes in the four EF2 variables in the same specification. See Table 4 for the results. This implies that what drives the relationship between changes in economic freedom and changes in tolerance is, in fact, the degree to which the income-tax systems

[13] Some of the controls, inequality and real GDP per capita in particular, may be mediators, i.e., factors that are influenced by changes in economic freedom. Including a mediator in the specification reduces the estimated effect of changes in economic freedom on changes in tolerance, which implies that we get conservative estimates.

[14] (0.51 + (1.1*0.6))-(0.51 + (0.4*0.6)) = 0.576–0.534 = 0.042, 0.042/0.53.4 = 0.079.

[15] Could it be that the results for tolerance towards racists are somewhat different because many people are themselves racist? Although this is hard to investigate with aggregate data, when we correlate our tolerance-towards-racists measure with two measures of racism (the share in a state that say that they would not vote for a black presidential candidate, even if competent and nominated by their own party; and the share that agrees that blacks should not push themselves where they are not wanted), we not only find relatively low coefficients, both for levels (−0.23; −0.42) and changes (−0.11; −0.41) – but they are also of the "wrong" sign: More tolerance towards racists goes with fewer racists. Hence, we do not find support for such an explanation.

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Table 1
Economic freedom and tolerance.

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance
ΔEF	0.019	0.037**	0.045**	0.046**	0.051**	0.056***
	(0.017)	(0.018)	(0.018)	(0.019)	(0.020)	(0.020)
Tolerance	−0.585***	−0.804***	−0.887***	−0.896***	−0.897***	−0.930***
	(0.103)	(0.105)	(0.116)	(0.115)	(0.115)	(0.111)
Real GDP per capita	0.104**	−0.039	0.096	0.083	0.082	−0.021
	(0.048)	(0.053)	(0.068)	(0.076)	(0.077)	(0.092)
High school		0.727**	0.763***	0.903***	1.004**	0.863**
		(0.293)	(0.273)	(0.342)	(0.386)	(0.413)
Some college		0.883***	1.113***	1.212***	1.270***	1.468***
		(0.250)	(0.249)	(0.321)	(0.337)	(0.462)
College degree		1.346***	1.156***	1.233***	1.271***	1.291***
		(0.356)	(0.372)	(0.367)	(0.380)	(0.365)
Age 25–44			1.116	1.185	1.351	2.500**
			(0.807)	(0.831)	(0.877)	(0.997)
Age 45–64			−1.414	−1.352	−1.512	0.003
			(0.951)	(1.037)	(1.056)	(1.256)
65 +			0.903*	0.928*	0.988*	1.191
			(0.469)	(0.500)	(0.500)	(0.729)
Blacks				0.062	0.038	0.076
				(0.145)	(0.152)	(0.181)
Hispanics				0.066	0.018	0.225
				(0.128)	(0.145)	(0.153)
Gini					0.271	0.254
					(0.387)	(0.370)
Midwest						−0.033
						(0.067)
North						−0.071
						(0.089)
South						−0.080
						(0.088)
West						−0.124*
						(0.067)
Constant	−0.656	0.169	−1.339**	−1.340*	−1.522**	−1.082
	(0.479)	(0.510)	(0.666)	(0.700)	(0.705)	(0.763)
Observations	101	101	101	101	101	101
Adjusted R^2	0.312	0.427	0.487	0.477	0.473	0.486

Note: Robust standard errors, clustered on the state level, in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

becomes more or less non-general or progressive. The more progressive the income taxes, the lower the tolerance.[16] It may be that part of the positive effect emerges from lower taxation levels – as mentioned, the change in EF2a is significant when included by itself but becomes insignificant when the changes in EF2b, EF2c and EF2d are included – perhaps indicating that lower taxes may be beneficial for tolerance, but only when carried out through reduced progressivity. This suggests a role for tolerance-increasing market mechanisms, in line with our theoretical reasoning in Section 2.2.

Robust standard errors, clustered on the state level, in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

The three measures *Tolerance racists*, *Tolerance homosexuals* and *Tolerance atheists* can be disaggregated into three "freedoms": to speak, to write and to teach. In order to further examine our baseline findings, we also run separate regressions using each of these components as the dependent variable. The more detailed picture that emerges is largely consistent with the baseline story: An increase in the willingness to let racists, atheists and homosexuals speak and keep books in libraries is positively related to preceding increases in economic freedom, especially lower taxes. The same relationship holds for the willingness to let

[16] The General Social Survey contains the question "Should the rich pay a larger share of taxes?", and in 2008 about 61% replied that the rich should pay either a larger or a much larger share. Is this a problem for the interpretation of our results, which suggests that less progressivity increases tolerance by reducing tensions stemming from unequal treatment by the government in setting tax rates? We do not think so, because of respondent ignorance. First, Roberts et al. (1994: 165) report the following: "Consistent with surveys of the general public, a majority of the subjects indicated a preference for progressive taxation in response to abstract questions. However, consistent with results from social psychology and political science research, the subjects' preferences for progressive taxation were significantly different (lower) in response to concrete questions. The observed preference reversal between progressive taxes in the abstract and flat taxes (i.e., proportional to income) in concrete situations is hypothesized to be associated with subjects' ignorance …". On how framing affects replies to tax questions, see McCaffery and Baron (2004). Second, Karadja et al. (2016) find, linking survey replies to register data, that a vast majority of Swedes believe that they are poorer, relative to others, than they actually are. An experiment reveals that when subjects are informed about their correct place in the income distribution, they demand less redistribution. We therefore consider the General Social Survey replies compatible with our suggested interpretation of our regression results: It is one thing to answer in the abstract, it is another thing how real-life attitudes form and change.

[17] These results are available from the authors upon request.

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Table 2
Economic freedom and tolerance towards racists, homosexuals, atheists and communists.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ΔTolerance racists	ΔTolerance racists	ΔTolerance racists	ΔTolerance homosexuals	ΔTolerance homosexuals	ΔTolerance homosexuals	ΔTolerance atheists	ΔTolerance atheists	ΔTolerance atheists	ΔTolerance communists	ΔTolerance communists	ΔTolerance communists
ΔEF	0.000	0.035	0.041	0.025	0.048**	0.048*	0.029	0.067***	0.067***	0.044*	0.075**	0.087***
	(0.017)	(0.024)	(0.026)	(0.018)	(0.024)	(0.025)	(0.021)	(0.022)	(0.024)	(0.023)	(0.030)	(0.028)
Controls	As in column (1) of Table 1	As in column (5) of Table 1	As in column (6) of Table 1	As in column (1) of Table 1	As in column (5) of Table 1	As in column (6) of Table 1	As in column (1) of Table 1	As in column (5) of Table 1	As in column (6) of Table 1	As in column (1) of Table 1	As in column (5) of Table 1	As in column (6) of Table 1
Observations	101	101	101	101	101	101	101	101	101	101	101	101
Adjusted R^2	0.392	0.456	0.463	0.380	0.552	0.551	0.334	0.569	0.567	0.366	0.504	0.531

Note: Robust standard errors, clustered on the state level, in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. For the full results, including all control variables, see Table OA1 in the Online appendix.

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Table 3
Areas of economic freedom and dimensions of tolerance.

	(1)	(2)	(3)	(4)
	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance
ΔEF1	0.017			−0.006
	(0.022)			(0.034)
ΔEF2		0.035***		0.038***
		(0.010)		(0.012)
ΔEF3			0.026	−0.015
			(0.033)	(0.045)
	ΔTolerance racists	ΔTolerance racists	ΔTolerance racists	ΔTolerance racists
ΔEF1	0.000			−0.060
	(0.028)			(0.049)
ΔEF2		0.024*		0.023
		(0.014)		(0.014)
ΔEF3			0.046	0.075
			(0.040)	(0.062)
	ΔTolerance homosexuals	ΔTolerance homosexuals	ΔTolerance homosexuals	ΔTolerance homosexuals
ΔEF1	0.007			−0.007
	(0.027)			(0.039)
ΔEF2		0.031**		0.036***
		(0.012)		(0.012)
ΔEF3			0.009	−0.031
			(0.042)	(0.055)
	ΔTolerance atheists	ΔTolerance atheists	ΔTolerance atheists	ΔTolerance atheists
ΔEF1	0.034			0.005
	(0.029)			(0.039)
ΔEF2		0.040***		0.040***
		(0.012)		(0.013)
ΔEF3			0.047	−0.008
			(0.040)	(0.051)
	ΔTolerance communists	ΔTolerance communists	ΔTolerance communists	ΔTolerance communists
ΔEF1	0.041			0.037
	(0.037)			(0.045)
ΔEF2		0.058***		0.066***
		(0.014)		(0.015)
ΔEF3			0.025	−0.094
			(0.045)	(0.059)

Note: All regressions include all baseline controls and geographical dummy variables. Robust standard errors, clustered on the state level, in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

homosexuals and atheists teach college students, but not for having racists teaching a younger generation. A reduction in government size also correlates positively and significantly with an increase in tolerance towards atheists being college teachers.[17]

4.2. Extended analysis

In order to further investigate the robustness of the main findings, we conduct several sensitivity analyses. The results are for the most part included in the Online appendix.

First, we conduct an instrumental-variable (IV) analysis in order to see whether the influence from more economic freedom to more tolerance can plausibly be seen as causal. We focus our analysis on the change in EF2b, which turned out to be the main driving force behind the positive relationship, and make use of two instrumental variables. As our first instrument we use the average change in economic freedom in neighboring states, where the time period is the same as for the corresponding measures of

[17] These results are available from the authors upon request.

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Table 4
Variables of EF2 (takings and discriminatory taxation) and dimensions of tolerance.

	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance
ΔEF2a (ΔTotal tax revenue)	0.032*				−0.011
	(0.016)				(0.021)
ΔEF2ba (ΔTop marginal income tax rate)		0.011***			0.011***
		(0.003)			(0.004)
ΔEF2c (ΔIndirect tax revenue)			0.025		0.011
			(0.018)		(0.021)
ΔEF2d (ΔSales tax)				0.030	0.033
				(0.030)	(0.030)

	ΔTolerance racists	ΔTolerance homosexuals	ΔTolerance atheists	ΔTolerance communists
ΔEF2a (ΔTotal tax revenue)	−0.010	−0.025	−0.017	0.013
	(0.029)	(0.023)	(0.024)	(0.033)
ΔEF2b (ΔTop marginal income tax rate)	0.004	0.015***	0.013***	0.015**
	(0.005)	(0.005)	(0.004)	(0.006)
ΔEF2c (ΔIndirect tax revenue)	0.044	−0.013	0.023	0.006
	(0.028)	(0.020)	(0.025)	(0.034)
ΔEF2d (ΔSales tax)	0.041	0.030	0.026	0.035
	(0.038)	(0.038)	(0.033)	(0.046)

Note: All regressions include all baseline controls and geographical dummy variables. Robust standard errors, clustered on the state level, in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

economic freedom that we use in the regular analysis and where "neighboring state" is a state that is geographically connected to the state in question. (For example, Iowa has six neighboring states: Minnesota, South Dakota, Nebraska, Missouri, Illinois and Wisconsin.) The idea behind this instrument is that it is plausible to think that economic policy in one state is affected by the policies of close states. Policymakers often look for good reform ideas, and policies that have been introduced and seemed to work well in states that are relatively similar could be thought to have the potential to work well in the home state as well. Furthermore, we do not see any reason to expect a link from the changed economic policies of neighboring states on future tolerance changes in the home state, since the effects of policies occur in the geographical locations where they have been instituted. Our second instrument is the change in EF1 in the own state. The idea is that liberalizing reforms are related by either being complements or substitutes. At times, such reforms go together, as part of major reform packages, but at other times, one reform may be reason for policymakers to feel inclined to not liberalize or even reduce economic freedom in other areas. Moreover, as can be seen in Table 3 this dimension of economic freedom is not associated with the change in tolerance. When performing an IV analysis, the results of which are reported in Table OA2 in the Online appendix, we first of all find that the instruments are significantly related to our explanatory variable of interest, change in EF2b. The 2SLS regressions then show that the baseline OLS results seem to hold: Average change in tolerance, change in tolerance towards homosexuals, change in tolerance towards atheists and change in tolerance towards communists all stand in a significant relationship to change in the top marginal income tax rate and the threshold to which it applies, which, together with results of Sargan tests, suggests causality – although we advise readers to interpret this with some caution (as we cannot clearly show that the exclusion restriction is fulfilled). No such finding is obtained for change in tolerance towards racists. As for the magnitude of the effects, the 2SLS estimations suggest that baseline results, if anything, are biased downwards. As a further sensitivity test, we conduct the IV analysis using only the first instrument above, and the results hold in the same manner (available on request).

Second, we have conducted a further tentative test of causality, of a Granger type, by regressing the change in economic freedom on change in tolerance in the preceding six-year period (using our various measures). That is, we use the same methodological approach as when studying how the change in economic freedom affects the change in tolerance, but we make let the latter be the explanatory variable and the former the dependent variable instead. We find that with one exception, the change in tolerance in the preceding time period is *not* related to the change in economic freedom in a statistically significant way. The exception is the change in tolerance towards communists, which in some specifications is negatively and significantly related to the change in economic freedom. But the overall picture is clear: The reverse relationship does not seem to exist for most of the tolerance measures, which may be taken to indicate that we do not capture reverse causality in our main specifications. See Tables OA3a,b in the Online appendix for details.

Third, one concern is that the identified association reflects underlying cultural change that has affected both the outcome variable and our main explanatory variable, such that the relationship is spurious. For example, one can imagine that conservatism in the United States comes with both a desire to increase economic freedom and intolerance, causing both to correlate. However, if this were the explanation, we would expect a negative sign, not a positive sign. To check this potential explanation further, we add "ideological" control variables (religiosity, two political measures – the share of votes in the presidential election for the Republican candidate, and whether the governor in the state is a Democrat – and a dummy for whether there is a right to work

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without being a member of a union, a proxy for right-wing ideology) in order to see if the results stand even if these cultural/political variables are included (see Table A3 for variable information). The results are reported in Table OA4 in the Online appendix. It turns out that a higher share of people regularly attending religious services does not significantly correlate with changes in tolerance. The two political variables are also insignificant throughout. Importantly, the inclusion of the religiosity variable and the political measures do not have any qualitative effect on the economic freedom estimates in any of the baseline regressions except one: The overall economic freedom variable loses its significance when the Republican-president dummy is included. This is driven by the (absence of an) effect on the change in tolerance towards racists; for the other two tolerance measures, the overall economic freedom variable retains its significance also when this dummy is included. Lastly, we include a dummy for state legislation that guarantees a right to work without being a union member. As noted by Bjørnskov and Potrafke (2013), this measure is a proxy for political ideology such that governors' ideological position is significantly more right-wing in states with such legislation. The right-to-work dummy is never significant in any of our specifications, and the inclusion of the variable does not change our baseline findings. Hence, we consider it improbable that our general results are driven by some underlying political-ideological factor that affects both changes in economic freedom and changes in tolerance.

Fourth, we re-run the above regressions using state- and time-fixed effects corresponding to the 41 states and the four time periods covered in the analysis (results can be found in Table A4 in the Appendix). Time dummies are not significant, and including state dummies does not change our main findings: Changes in EF2, specifically changes in the top marginal income tax rate, are positively associated with more tolerance.

Fifth, we run a test for multicollinearity. Examining the variance inflation factor (VIF) suggests no incidence of it: Reassuringly, all individual figures are below the critical value of 10 (Kutner et al., 2004).

Sixth, we conduct an outlier check and exclude tolerance and economic-freedom observations (all measures) that deviate more than two standard deviations from the sample mean. This exercise reduces the sample by up to seven observations. The results, reported in Table OA5 in the Online appendix, suggest that baseline findings are not driven by extreme values. Similarly, our baseline findings are robust to the exclusion of New York. In addition, we have run robust regressions (available on request), with very similar estimates as in the OLS regressions, which provides a further indication that outliers are not driving the results.

Seventh, we test if our results are driven by the choice of starting year or period choice. We see what happens when we deviate from the empirical approach presented above, where we use three six-year periods strictly, and rather allow six-year periods to overlap. In other words, we keep the lagged structure with changes in economic freedom predating changes in tolerance in the same way as above, but let $t = 1989, 1990, \ldots, 2002, 2003$, which gives us a "moving" change in economic freedom and tolerance. This strategy gives a sample of 258 observations, a substantial increase. The results (see Table OA6 in the Online appendix) are very similar to our baseline findings, with economic freedom relating positively to tolerance towards homosexuals and atheists, and with EF2 being the main driver.[18]

Eighth, we include unemployment as an explanatory variable. Following the discussion above, unfavorable conditions and high unemployment could potentially generate societal tension and hostility. See Table AO7 in the Online appendix for details. As predicted the unemployment estimate is negative, but imprecisely estimated in all specifications. Heller and Stephenson (2014) find that economic freedom is associated with lower unemployment, but labor market conditions are apparently not a mediator in the relationship with tolerance.

Ninth, we have included all explanatory variables at their average values in the preceding six-year period (the average over the period t-6 to t) instead of using their initial values in each period. It might be that individual observations in the data are atypical, and in this manner, we can check whether the results hold when measuring our right-hand side variables for a longer period of time. We find they do (see Tables AO8a–e in the Online appendix).

Tenth, the EF3 measure may not be an ideal proxy for regulation, since it only covers the labor market and since it, even there, looks at very few aspects. There is another measure of economic freedom in U.S. states (Ruger and Sorens, 2013), but unfortunately it does not contain a sufficient amount of data points over time for us to be able to use it in our dynamic analysis. Not least, it contains a more fine-grained measure of regulation, which in the index we use is limited to a few aspects of the labor market. As more data points become available, our analysis can be extended. Likewise, Campbell et al. (2010) propose regulatory expenditures as a better measure of regulation than EF3, showing that it predicts income better. However, we have been unable to find sufficient data for including it. What we have been able to do is to test the three EF3 variables separately, and to replace EF3 with a measure of whether a state has a right-to-work law (Bjørnskov and Potrafke, 2013), but in neither case do we find any significant relationship with our dependent variable.

Eleventh, since tolerance towards racists is viewed, by some, as different in character than the other tolerance measures, we have constructed an alternative aggregate tolerance measure that excludes this particular type of tolerance while averaging the remaining three. In re-estimating Table 1 using this measure, we are reassured in finding similar results: The size of the estimates increase, and statistical significance is retained. See Table AO9 in the Online appendix for details.

To conclude, we find that the results hold up quite well to scrutiny: More economic freedom does seem able to foster tolerance.

[18] The approach to gradually include sets of control variables into the specification also reassures us that our results are not driven by a small sample size in relation to the number of controls. As can be seen in Table 1 and Table 2, there are no cases where only the specification including the full set of controls is significant.

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5. Concluding remarks

There is an ongoing discussion, with old roots, about the nature of markets and governments and their wider social consequences. This study is the first, to our knowledge, to look at whether changes in the character of economic policy can bring about more tolerance in America. More precisely, the question is whether lower government expenditures, lower and less discriminatory taxation and more limited regulation of economic life – i.e., more economic freedom – contribute to more tolerant attitudes towards racists, homosexuals and atheists in the context of U.S. states.

Using survey-based measures of tolerance – the shares of people who tolerate racists, homosexuals and atheists to speak in public, keep books in the library and teach college students – and the Economic Freedom of North America index – measuring the size and type of government expenditures, taxation and regulation – we conduct an empirical analysis to see what the "net" sign of the relationship is. An advantage of this within-country setting is that we effectively control for cultural and institutional features that are identical across states and thereby more precisely estimate the effects of market-oriented policies. Our findings indicate a positive relationship – more precisely, the share of the population who are tolerant tends to increase if economic freedom is increased through more general (i.e., less progressive) taxes (and possibly also if the total tax level is reduced). This holds, on the whole, for tolerance towards homosexuals, communists and atheists, but not, in a robust way, for tolerance towards racists. This is because changes in economic freedom are unrelated to a willingness to allow racists to teach college students. The results are shown to be stable to different sensitivity tests regarding causality, model specification, variable specification, period specification and sample specification. Looking at the estimates for the control variables, it is particularly noteworthy that education is positively related to more tolerance.

Although tolerance on average increased in the United States over the past decades, there is quite a large variation across and within states over time. Similarly, there are differences across the country when it comes to the development of economic freedom, and some states have only experienced marginal increases or even decreasing levels. Our findings suggest that a one-unit change in economic freedom corresponds to about a six-percentage point change in overall tolerance. This effect size can be illustrated with the states Texas and Tennessee: If Texas had increased its economic freedom as much as Tennessee since the 1980s, overall tolerance (ceteris paribus) would have been some eight percent higher.

The significance of these results is that unlike what many probably would have expected, economic policy seems able to influence a widely embraced social attitude, tolerance, through making taxes more general. If the government treats citizens equally, this can send a signal that freedom of expression for all, even for (sometimes despised) minorities, is worthy of public support.

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Appendix A

Table A1
U.S. states included in the empirical analysis.

Alabama	Kentucky	Oklahoma
Alaska	Louisiana	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Massachusetts	South Carolina
California	Michigan	South Dakota
Colorado	Minnesota	Tennessee
Connecticut	Mississippi	Texas
Delaware	Missouri	Vermont
Florida	Montana	Virginia
Georgia	New Jersey	Washington
Iowa	New York	West Virginia
Illinois	North Carolina	Wisconsin
Indiana	North Dakota	Wyoming
Kansas	Ohio	

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Table A2
The economic freedom of North America (all-government) index.

Area 1 Size of government (EF1)
1a General consumption expenditures by government as a percentage of GDP
1b Transfers and subsidies as a percentage of GDP
1c Social security payments as a percentage of GDP
Area 2 Takings and discriminatory taxation (EF2)
2a Total tax revenue as a percentage of GDP
2b Top marginal income tax rate and the income threshold at which it applies
2c Indirect tax revenue as a percentage of GDP
2d Sales tax collected as a percentage of GDP
Area 3 Regulation (EF3)
3a Labor market freedom
3ai Minimum wage legislation
3aii Government employment as a percentage of total state employment
3aiii Union density

Note: Each area, and each of its components, is measured on a ten-point scale. An area is the average of its constituent components. Source: Ashby et al. (2011).

Table A3
Descriptive statistics and data sources.

Variable	Obs	Mean	Std dev.	Min	Max	Source
ΔTolerance racists	101	0.011	0.136	−0.208	0.422	General Social Survey (2014)*
ΔTolerance homosexuals	101	0.051	0.138	−0.216	0.678	General Social Survey (2014)*
ΔTolerance atheists	101	0.043	0.142	−0.383	0.408	General Social Survey (2014)*
ΔTolerance communists	101	0.037	0.152	−0.296	0.509	General Social Survey (2014)*
ΔTolerance	101	0.033	0.114	−0.163	0.429	General Social Survey (2014)*
ΔEF (ΔEconomic freedom)	101	0.352	0.710	−0.700	1.700	Ashby et al. (2011)*
ΔEF1 (ΔSize of government)	101	0.008	0.490	−1.70	1.00	Ashby et al. (2011)*
ΔEF2 (ΔTakings and discriminatory taxation)	101	0.344	1.304	−1.80	2.40	Ashby et al. (2011)*
ΔEF3 (ΔRegulation)	101	0.710	0.565	−0.300	1.90	Ashby et al. (2011)*
ΔEF2a (ΔTotal tax revenue)	101	0.284	1.305	−1.543	1.439	Ashby et al. (2011)*
ΔEF2b (ΔTop marginal income tax rate)	101	1.101	4.753	−5.00	8.50	Ashby et al. (2011)*
ΔEF2c (ΔIndirect tax revenue)	101	−0.079	0.539	1.675	1.244	Ashby et al. (2011)*
ΔEF2d (ΔSales tax)	101	−0.005	0.276	−0.911	0.657	Ashby et al. (2011)*
Real GDP per capita	101	10.204	0.295	9.530	10.90	BEA (2013)
Less than high school education	101	0.182	0.067	0.071	0.364	CPS (2013)
High school	101	0.361	0.045	0.258	0.495	CPS (2013)
Some college	101	0.223	0.053	0.112	0.344	CPS (2013)
College degree	101	0.234	0.053	0.118	0.376	CPS (2013)
Younger than 25	101	0.360	0.021	0.317	0.415	U.S. Census (2010)
Age 25–44	101	0.308	0.019	0.271	0.357	U.S. Census (2010)
Age 45–64	101	0.208	0.021	0.170	0.247	U.S. Census (2010)
65+	101	0.125	0.018	0.051	0.185	U.S. Census (2010)
Blacks	101	0.128	0.092	0.004	0.363	U.S. Census (2010)
Hispanics	101	0.066	0.077	0.006	0.332	U.S. Census (2010)
Gini	101	0.417	0.041	0.328	0.513	Voorheis (2014)
Religiosity	101	0.256	0.083	0.063	0.529	General Social Survey (2014)
Republican president	101	48.21	7.969	28.08	61.50	Shor and McCarty (2011)
Democratic governor	101	0.465	0.501	0	1	Shor and McCarty (2011)
Right to work	101	0.394	0.491	0	1	Bjørnskov and Potrafke (2013)
Unemployment	101	5.42	1.239	2.90	10.50	BLS (2010)
Alaska	101	0.019	0.099	0	1	U.S. Census (2010)
Midwest	101	0.238	0.428	0	1	U.S. Census (2010)
North	101	0.158	0.367	0	1	U.S. Census (2010)
South	101	0.436	0.498	0	1	U.S. Census (2010)
West	101	0.158	0.367	0	1	U.S. Census (2010)
Average ΔEF in neighboring states	101	0.207	0.674	−0.679	1.480	Ashby et al. (2011)*

Note: * indicates that a variable is based on own calculations. The economic freedom variables are based on the "all-government" version of the index.

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Table A4
Adding state- and time-fixed effects.

	ΔTolerance	ΔTolerance	ΔTolerance	ΔTolerance
Tolerance	−1.231***	−1.252***	−1.230***	−1.237***
	(0.153)	(0.153)	(0.142)	(0.157)
Real GDP per capita	−0.300	−0.212	−0.133	−0.317
	(0.242)	(0.285)	(0.210)	(0.274)
High school	0.724	0.403	0.386	0.710
	(0.775)	(0.844)	(0.720)	(0.870)
Some college education	1.660*	0.825	1.803**	1.323
	(0.856)	(0.778)	(0.750)	(0.847)
College degree	0.682	−0.007	0.324	0.554
	(0.795)	(0.870)	(0.638)	(0.871)
Age 25–44	4.721	3.165	6.312**	3.757
	(3.257)	(2.637)	(3.128)	(3.081)
Age 45–64	4.658	4.586	3.949	5.006
	(4.078)	(3.659)	(3.757)	(4.232)
65 +	3.623	2.140	6.073	2.230
	(3.825)	(3.246)	(4.110)	(3.514)
Blacks	−0.316	−1.552	0.172	−0.860
	(2.063)	(1.860)	(1.956)	(1.929)
Hispanics	0.509	0.036	0.445	0.349
	(0.828)	(0.767)	(0.835)	(0.766)
Gini	0.874	0.433	0.787	0.768
	(0.680)	(0.647)	(0.599)	(0.807)
ΔEF	0.046			
	(0.043)			
ΔEF1		−0.030		
		(0.037)		
ΔEF2			0.045*	
			(0.023)	
ΔEF3				0.026
				(0.061)
Constant	−0.339	0.391	−2.569	0.507
	(1.438)	(1.881)	(1.727)	(1.585)
Observations	100	100	100	100
Adjusted R^2	0.540	0.533	0.566	0.529

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix B. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.ejpoleco.2016.06.001.

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